

Title (en)

Improved antenna arrangement for multiple input multiple output communications systems

Title (de)

Verbesserte Antennenanordnung für Kommunikationssysteme mit Mehreingangs-/Mehrausgangskanäle (MIMO)

Title (fr)

Dispositif d'antenne perfectionné pour systèmes de communication à entrées multiples et sorties multiples

Publication

**EP 1657779 A2 20060517 (EN)**

Application

**EP 06001422 A 20020111**

Priority

- EP 02732089 A 20020111
- US 76553201 A 20010119

Abstract (en)

The present invention relates to antennas for radio communications, and in particular although not exclusively to multiple input multiple output (MIMO) radio communications systems. An antenna arrangement comprising: a first, a second, and a third ground plane each arranged substantially perpendicular to the others; a first, a second, and a third antenna element associated with respectively said first, said second, and said third ground planes, each antenna element arranged to radiate in a predetermined polarisation in elevation and azimuth with respect to said respective associated ground plane.

IPC 8 full level

**H01Q 1/22** (2006.01); **H01Q 1/24** (2006.01); **H01Q 9/04** (2006.01); **H01Q 9/42** (2006.01); **H01Q 21/24** (2006.01); **H01Q 21/29** (2006.01); **H04B 7/10** (2006.01)

CPC (source: EP US)

**H01Q 1/2258** (2013.01 - EP US); **H01Q 1/2266** (2013.01 - EP US); **H01Q 1/24** (2013.01 - EP US); **H01Q 9/04** (2013.01 - EP US); **H01Q 9/0421** (2013.01 - EP US); **H01Q 9/42** (2013.01 - EP US); **H01Q 21/24** (2013.01 - EP US); **H01Q 21/28** (2013.01 - EP US); **H01Q 21/29** (2013.01 - EP US); **H04B 7/10** (2013.01 - EP US)

Cited by

CN104733857A; US8224271B2; US12035515B2; WO2009080110A1; WO2011011549A1; WO2022225596A1

Designated contracting state (EPC)

DE FR GB

DOCDB simple family (publication)

**WO 02058187 A1 20020725**; CA 2435099 A1 20020725; CA 2435099 C 20120313; DE 60226790 D1 20080703; EP 1356542 A1 20031029; EP 1657779 A2 20060517; EP 1657779 A3 20060705; EP 1657779 B1 20080521; US 6426723 B1 20020730

DOCDB simple family (application)

**GB 0200096 W 20020111**; CA 2435099 A 20020111; DE 60226790 T 20020111; EP 02732089 A 20020111; EP 06001422 A 20020111; US 76553201 A 20010119